

02/25/14 Agenda

- Warm Up
- Retake Information
 - Remediation Packet is on my web site
 - It's due by March 3rd (next Monday)
 - Complete it, Reflection Sheet, & Missing Homework
 - You have 1 week after submitting it to take your retest
- Review Homework
 - Worksheet 7.2 day 2 - Multiplying Exponents
- Section 7.3 - Multiplying Power to a Power
- Review Chapter 6 Test
- Homework
 - Worksheet 7.3 - Powers of Powers

$$12. \quad 25^{\frac{3}{2}} = 25^{\frac{1}{2}} \cdot 25^{\frac{1}{2}} \cdot 25^{\frac{1}{2}}$$

$$5 \cdot 5 \cdot 5 = 5^3$$

$$25^{\frac{3}{2}} = 125$$

$$25^{(3/2)}$$

$$(9d^1 \cdot 9d^2) = 9d^3 \cdot 9d^3$$

$$9 \cdot d \cdot d \cdot d \cdot 9 \cdot d \cdot d \cdot d$$

$$9 \cdot 9 \cdot d \cdot d \cdot d \cdot d \cdot d \cdot d$$

$$9^2 d^6 = 81 d^6$$

$$\#9 \quad 243^{\frac{1}{5}}$$

$$5^2 = 25$$

$$\sqrt[5]{243}$$

$$\sqrt{25} = 25^{\frac{1}{2}} = 5$$

$$243^{(1/5)}$$

$$= 3$$

$$3^5 =$$

$$13. \left(\underline{7} \underline{q}^{\frac{4}{3}} \cdot \underline{6} \underline{r}^{\frac{3}{5}} \right) \cdot \left(\underline{7} \underline{q}^{\frac{1}{3}} \cdot \underline{6} \underline{r}^{\frac{1}{5}} \right)$$

$$7 \cdot 6 \cdot 7 \cdot 6 \quad \frac{4}{3} + \frac{1}{3} \quad \frac{3}{5} + \frac{1}{5}$$

$$1764$$

$$q^{\frac{4}{3} + \frac{1}{3}} r^{\frac{3}{5} + \frac{1}{5}}$$

$$1764 q^{\frac{5}{3}} r^{\frac{4}{5}}$$

Section 7.3 - Multiplying Power to a Power

Target 7B

February 25, 2014

Goal: Be able to simplify and solve powers to a power.

Review:

Product of Powers Rule:

$$a^m \cdot a^n = a^{m+n}$$

Multiply the coefficients and add the exponents

What do we mean by "power to a power"?

When you have an exponent to another exponent

Example: $(x^5)^2 = x^5 \cdot x^5 = x^{5+5} = x^{10}$

What do we do with the exponents to simplify?

MULTIPLY THE EXPONENTS

$$\frac{4}{3} \times \frac{3}{1} = \frac{12}{3} = 4$$

Examples:

Simplify the following:

$$(z^5)^3 = z^{15}$$

$$(m^4)^{10} = m^{40}$$

$$\left(k^{\frac{4}{3}}\right)^3 = k^4$$

What if we have coefficients?

$$(2x)^2 = 2x \cdot 2x = 4x^2$$

THEY GET THE EXPONENT ALSO

Examples:

Simplify the following:

$$(6a)^4 = 6^4 a^4 = 1296a^4$$

$$(9d^{10})^2 = 9^2 d^{20} = 81d^{20}$$

Section 7.3 - Multiplying Power to a Power

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What do we do first when we have multiplying AND "power to a power"?

GO IN ORDER OF OPERATIONS
1.) POWERS
2.) MULTIPLICATION
POWER TO POWER

Examples:

Simplify the following:

$$z \cdot (y^5 z^7)^2 \cdot y^5$$

$$z^1 \cdot y^{10} z^{14} \cdot y^5$$

$$z^{15} y^{15}$$

$$5x^5 y^2 (2x^{14})^2$$

$$5x^5 y^2 \cdot 4x^{28}$$

$$20x^{33} y^2$$

YOU TRY:

$$(2^1 x^2 y^3)^4 = 2^{(1 \cdot 4)} x^{(2 \cdot 4)} y^{(3 \cdot 4)}$$

$$16x^8 y^{12}$$

Section 7.3 - Multiplying Power to a Power

Target 7B

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Summary of Rules ... so far:

Multiplying Powers With the Same Base:

$$a^m \cdot a^n = a^{m+n} \quad \text{Add the exponents}$$

Raising a Power to a Power:

$$(a^m)^n = a^{m \cdot n} \quad \text{Multiply the exponents}$$

Raising a Product to a Power:

$$(ab)^m = a^m \cdot b^m \quad \text{Raise each factor to the power and multiply.}$$